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volatilizes very readily and is rapidly extracted from the finely pulverized substance by sodium thiosulfate solution. The sulfur left after the extraction of the iodine is readily soluble in carbon bisulfid. It would seem that in the 'iodized sulfur' the iodine is merely dissolved in the sulfur. The 'sulfur iodid' is prepared by adding pulverized iodine to sulfur heated to 200°. While cooling, the mass is poured into cold water and then powdered. The iodine cannot be dissolved out by thiosulfate solution and seems to be in chemical combination. The color of the sulfur iodid is yellowish red; that of the iodized sulfur brownish black. Both substances, especially the latter, are energetic therapeutic agents.

THE question of the form in which iodine occurs in the sea water has received a new answer from Armand Gautier in the *Comptes Rendus*. It is questionable how much experimental evidence can be deduced to show the presence of sodium iodid or calcium iodate, though both of them have been proposed. Gautier claims that all the iodine in sea water is in the form of organic compounds. About one-fifth is combined in algæ and spores, and the remainder in the form of soluble organic compounds; the latter are in part derived from the decomposed algæ, and are in turn assimilated by other algæ. It would be an interesting thing to have this question settled once for all, but the problem is one of great difficulty.

THERE is also presented in the *Comptes Rendus* a study by M. De Forcrand of the chemical function of water compared with that of hydrogen sulfid. From the heats of formation of the oxids of sodium the author concludes that the two hydrogen atoms in a molecule of water are distinctly different in function, and hence that water possesses an asymmetrical formula which he would represent by $H-OH$. In hydrogen sulfid, on the other hand, he considers the hydrogen atoms of equal value, and it consequently possesses a symmetrical formula $H-S-H$.

ACCORDING to the *Pharmaceutische Central-Halle* Varino has succeeded in preparing a colloidal form of bismuth. The very diluted solution of bismuth tartrate in potassium tartrate is

treated with a solution of stannous chlorid in caustic potash. A clear brown fluid results, from which very little bismuth precipitates, and which acts toward the electrical current in a similar manner to colloidal gold.

ACCORDING to the *Chemical News*, one of the the most interesting exhibits at the recent Royal Society Conversazione was the series of experiments by Mr. W. A. Shenstone and Mr. W. T. Evans, showing the manufacture of tubes of rock crystal in the oxyhydrogen blow-pipe flame. Tubes of one centimeter in diameter, composed of rock crystal, can now be made of considerable length at the rate of about three centimeters an hour. This is of great practical as well as theoretic interest.

J. L. H.

RECENT PROGRESS IN THE EXAMINATION OF FOODS AND DRUGS.

PLANT PRINCIPLES.

As the result of some investigations on the carbohydrates in bulbs, tubers, etc., L. du Sablon* gives the following information: The reserve materials in the tubers of potato, rhizomes of *Arum* and *Iris* and the corms of *Colchicium* and *Ranunculus* consist almost entirely of starch, with small quantities of dextrin and sugar. In the tubers of *Ophrys* and the bulbs of *Lolium*, *Tulipa* and *Hyacinthus* the reserve is made up of starch and dextrin. In the corm of *Ficaria* starch, dextrin and non-reducing sugars are present. In the tubers of *Dahlia* inulin and levulin are found; whereas in the tubers of the artichokes, besides the inulin and levulin, non-reducing sugars are present. Chiefly reducing and non-reducing sugars are to be found in the bulbs of *Allium* and *Asphodelus*. The experiments of du Sablon seem to show that the starch is transformed into dextrin, then into non-reducing sugars and finally into reducing sugars.

Inulin has been found by H. Fischer† to occur in most of the tribes and a large number of genera of the N. O. Compositæ. It is also found in the Campanulacæ, Lobeliaceæ, Goodeniaceæ, Stylidaceæ, etc. He assigns to it the formula $333 C_6H_{10}O_5$ or $C_{1998}H_{3330}O_{1665}$.

* Bonniers Rev. Gén. de Bot., 1898; p. 295.

† Cohn's Beitr. Biol. Pflanz., 1899, p. 53.

The essential oil of orange flowers (*Citrus aurantium amara* L. and *C. bigaradia* Dick) has been examined by E. and H. Erdmann,* and they find it to contain (0.129 gms. per kilo of oil) anthranilic methyl ester. It is supposed that the fluorescence of the oil is due to this ester.

Jasmal, or methylene acetal of phenyl-glycol, is the name given by A. Verley † to a principle which he has made synthetically and which it is claimed possesses the characteristic odor and other properties of the principal odorous principle of jasmine. The West Indian sandalwood oil ‡ is recognized by E. M. Holmes as coming from a new genus and species of the N. O. Rutaceæ, and named by him *Schimmelia oleifera*.

The oleoresin of *Dacryodes hexandra* Griseb. (N. O. Burseraceæ) has been found by A. More § to consist of an essential oil, a resin and a crystalline substance. The oil contains levorotatory pinene and levorotatory sylvestrine. The crystalline principle is insoluble in water and is only sparingly soluble in strong alcohol, and appears to be identical with Personne's ilicic alcohol.

Gum M'beppe, or Kongosita, has been identified by E. Heckel || as the product of *Sterculia tomentosa* Guill et Perrot. It is distinguished from tragacanth in that it does not give any coloration with iodine and yields 7.24 per cent. of ash.

According to F. C. Newcombe ¶ the enzyme of *Aspergillus oryzae* acts with greater intensity upon reserve cellulose than upon starch, while the enzymes of *Lupinus albus* and *Phoenix dactylifera* act so strongly on reserve cellulose and so feebly upon starch that they may be regarded as cystase rather than as diastase. S. H. Vines ** has continued his studies on the enzyme of *Nepenthes* and says that, like all the vegetable proteolytic enzymes, it is probably tryptic in character, being more stable in its nature and

more rapid and energetic in its action than that contained in germinating seeds, which it closely resembles.

FOODS AND SPICES.

At a recent meeting of the Incorporated Society of Medical Officers of Health,* England, the following resolutions were adopted: (1) 'That the Incorporated Society of Medical Officers of Health strongly disapproves of the practice of adding preservative chemicals to milk and other foods;' (2) 'that if preservative chemicals be added to any food a full disclosure as to the nature and amount thereof should be made.'

It is not unusual to find some of the exhausted umbelliferous fruits in adulterated pepper, but T. F. Hanausek † records for the first time the employment of exhausted coriander to adulterate a sample of pepper.

A. Juckenack and R. Sendtner ‡ have examined the fennel from Germany, Italy, Macedonia and Galicia. They find in all cases upon placing the exhausted fennel in water that the fruits become dark colored and sink, whereas the genuine fruits retain their color and float. Upon making a microscopical examination a marked difference is also observable. The author also notes that from 70 to 80 per cent. of the fruits of fennel should be capable of germination. He has not found any specimens in which chrome yellow was used to improve the appearance of the fennel, although he has met some samples in which ochre had been employed.

The ash of the fruits and seeds of *Ellettaria cardamomum* Maton (N.O. Zingiberaceæ) always contain manganese. According to W. W. Will § the ash is found in the following percentage in the different parts: (1) whole seeds, 3.26; (2) crushed seeds, 3.52; (3) pericarp of fruit, 5.96 to 6.17; (4) entire fruits and seeds, 3.84 to 4.22.

A sample of coffee which had caused symptoms of poisoning in the members of a family drinking the infusion was examined by S.

* Ber. d. D. Chem. Ges., 1899, p. 1213.

† Bull. Soc. Chim., 1899, p. 226.

‡ Pharm. Jour. (London), 1899, p. 53.

§ Chem. News, 1899, p. 284.

|| Ext. Rev. d. Cult. Col.; through Pharm. Jour., 1899, p. 139.

¶ Annals of Botany, 1899, p. 49.

** Ibid., p. 545.

* The Analyst.

† The Analyst.

‡ Zeitschr. f. Nahr. u. Genuss., 1899, No. 4.

§ Chem. News, 1899, p. 167.

Bein.* He failed to detect the usual metallic or alkaloidal poisons, but found a ptomaine, which arose probably either through the spoliation of the coffee by means of sea water or by overroasting the product. Massee,† describes a blight (*Pestalozzia guepini* Dermaz) which occurs on the tea plantations of Ássam and is doing considerable damage.

The well-known property, which formaldehyde possesses, of forming insoluble compounds with proteid substances, and applied by Beckmann to the estimation of gelatin and albumin in peptones, has been recently applied by Trillat‡ to the detection and estimation of gelatin in general and especially when mixed with gums.

In the examination of various cereals A. van Bastelaer§ finds that upon heating 1 part of the cereal with 5 parts of water at a temperature of 11 to 12° C. for 1 hour that certain characteristics are brought out; rye giving a rather viscous solution; linseed and buckwheat yielding a thick mucilage; whereas wheat, rice, spelt, barley and oatmeal give solutions of rather even viscosity. He further finds that the leguminous cereals, upon shaking the solutions, develop a large amount of froth, whereas the solution of corn does not froth. All of the cereals, with the exception of rice, yield a precipitate with picric acid, the largest amount of precipitate having been produced with the leguminous cereals. Alcohol, likewise, produces a precipitate with solutions of rice, barley, buckwheat and the leguminous cereals the precipitate of the leguminous cereals and flaxseed being soluble in ammonia.

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POSITION OF WOMEN IN BABYLONIA.

A RECENT treatise by Victor Marx defines the position of women in Babylonia during the period 604-485 B. C., as illustrated by the con-

* Zeitschr. f. angew. Chem., 1898, 658; Analyst, 1899, p. 36.

† Pharm. Zeit., 1899, p. 749.

‡ Ann. Chim. Anal. App., 1898, p. 401; Analyst, 1899, p. 35.

§ Jour. Pharm. Chim., 1898, VIII., 43; Pharm. Centralb., 1899, p. 303.

tract literature of the times; his treatise forms half of Heft 1, Band IV., of the Beiträge zur Assyriologie und semitischen Sprachwissenschaft, Leipzig, 1899; and is reviewed at some length by J. Dyneley Prince in the *American Journal of Philology*, Vol. XX., pp. 104-106. The contracts indicate that Babylonian maidens held property in their own right, and that there were definite marriage stipulations relating to dowry, incidentally indicating the dependence of the son on his father's wishes in the choice of a wife. The dowry contracts were definite, stating the amount and nature of the property to be given, providing for payment by instalments and arranging for payment by a brother in case of the father's decease, the dowry being regarded as a legally collectable debt, payable in kind if money were lacking. The legal recipient of the dowry was the son-in-law, yet the daughter (wife) retained such proprietary interest therein that if invested in realty by the husband it was in the wife's name. Married women were competent to conduct transactions relating to money, to realty, and to slaves, their contracts being sometimes witnessed by the husband; while various business transactions were performed in common by husband and wife, the former being alone responsible as guarantor, the mere presence of the wife giving legality to the husband's transactions, at least in certain cases. There are indications that husband and wife enjoyed approximately equal rights with respect to property, the control of children, etc.; there is little reference to the husband's duty to support the wife, though it appears that in case of divorce the husband paid alimony according to his means. Frequent reference to slaves appears in the contracts, but the author postpones discussion of the subjects of slavery and of the condition of female slaves. The information brought to light through the study of these ancient contracts bears on the development of institutions. Apparently the regulations governing the contracts studied pertained chiefly to urban life; certainly the regulations seem hardly in accord with the customs prevailing among contemporary nomadic tribes and still maintained among their descendants of similar habit.

W J M.